

CS4471 Lab Assignment 1

LAN Wiring and Physical Topology

1.
 - a. (10 pts) Using the ETC245 network diagram as reference, connect your lab computer to a Cisco Ethernet switch with an Ethernet cable. On the Cisco switch, which port number did you use? What pin numbers (not port numbers) on the RJ45 jack are used for transmitting and receiving data?
 - b. (10 pts) What is the difference between a straight-through Ethernet cable, a crossover Ethernet cable, a rolled (rollover) cable, and a serial cable? Under what circumstances would you use each of the aforementioned type of cable?
2. Use the World-Wide-Web to locate 2 Ethernet hubs and 2 Ethernet switches manufactured by different manufacturers.
 - a. (10 pts) List manufacturers' name, URL of website, and model numbers of the hubs and switches.
 - b. (10 pts) What media types and what network speeds do these hubs and switches support?
 - c. (10 pts) What is the difference between an Ethernet switch and a shared Ethernet hub?
3. (50 pts) Suppose you had to design a wired Ethernet network for a 4-story office building containing 20 users per floor. Each floor is 90 meters in length and 5 meters in height. Draw a network topology of your proposed design using Cisco equipment. The access-layer switches must support 1Gbps to each user's desktop computer and have 10Gbps uplink capability. Specify in the drawing
 - (i) the model number of each Cisco equipment used,
 - (ii) the part number of 10 Gbps transceivers used,
 - (iii) the type of cabling used for connecting the users' computers ,
 - (iv) the type of cabling for interconnecting the network equipment, and
 - (v) the location where each network equipment will be placed.